

Amendments to the Claims:

1. (Currently Amended) A body of a vehicle for hauling material having a front wall, a pair of sidewalls and a rear edge, the body made by the following process:
 - (a) determining an anticipated point of use for the vehicle;
 - (b) collecting data from the anticipated point of use including information regarding the shape of an actual load carried in an existing vehicle body as it extends upwards to the actual load top from at least two of a group consisting of (1) the body front wall, the body rear edge or (2) one of the two body sidewalls and (3) the other of the two body sidewalls;
 - (c) determining a desired location for a load center of gravity on a chassis of the vehicle;
 - (d) determining a desired volumetric capacity for the body;
 - (e) establishing an initial line for a floor of the body, an initial line for a the front wall of the body and an initial inside body width;
 - (f) developing a three dimensional volumetric model of a load to be carried in the body on the chassis defined by the initial floor line, the initial front wall line and the initial inside body width using the data collected from the anticipated point of use with the three dimensional volumetric model having a volume and a volumetric model center of gravity located on the chassis;
 - (g) adjusting a set of design parameters of the body until the load model center of gravity is located proximate the desired location for the load center of gravity on the chassis from step (c) and the volume of the three dimensional volumetric model is substantially similar to the desired volumetric capacity from step (d); and
 - (h) producing the body in accordance with the set of design parameters.
2. (Previously Presented) The invention according to claim 1 wherein the set of design parameters of the body includes a position of the body floor and a position of the body sidewalls.
3. (Original) The invention according to claim 2 wherein the position of the body floor includes a length of the floor.

4. (Original) The invention according to claim 2 wherein the position of the body sidewalls includes a height of the sidewalls.

5. (Original) The invention according to claim 4 wherein the position of the body sidewalls further includes a distance between the respective sidewalls.

6. (Original) The invention according to claim 2 wherein the set of design parameters of the body further includes a position of the body front wall.

7. (Previously Presented) The invention according to claim 4 further including the step of adjusting the length of the body floor and the height of the body sidewalls to provide the lowest practical vertical location for the center of gravity of the three dimensional volumetric model of the hauled material.

8. (Previously Presented) The invention according to claim 1 wherein the data collected from the anticipated point of use includes angles of material repose.

9. (Original) The invention according to claim 8 wherein the angles of material repose include a front angle of material repose, a rear angle of material repose and side angles of the material repose.

10. (Previously Presented) The invention according to claim 9 wherein the data collected from the anticipated point of use further includes a representation of an actual load carried in an existing vehicle body.

11. (Previously Presented) The invention according to claim 10 wherein the data collected from the anticipated point of use includes angles of material repose and representations of corner voids present in the corners of existing load-carrying vehicle bodies.

12. (Previously Presented) The invention according to claim 1 wherein the data collected from the anticipated point of use further includes a density of the load material.

13. (Previously Presented) The invention according to claim 1 wherein the data collected from the anticipated point of use includes a method used for loading material into an existing vehicle body.

14. (Previously Presented) The invention according to claim 10 wherein the step of developing the three dimensional volumetric model of a load to be carried in the body includes developing the three dimensional volumetric load model to account for corner voids in the vehicle body.

15. (Previously Presented) The invention according to claim 14 wherein the three dimensional volumetric load model is developed through a gradual incremental blending of the respective side angles of material repose to the front angle of material repose and a gradual incremental blending of the respective side angles of material repose to the rear angle of material repose.

16. (Previously Presented) The invention according to claim 14 further including the step of comparing the three dimensional volumetric load model with the representation of the actual load information collected at the anticipated point of use and adjusting the three dimensional volumetric load model as necessary such that the three dimensional volumetric load model substantially compares with the representation of the actual load information collected at the anticipated point of use.

17. (Previously Presented) The invention according to claim 15 wherein the incremental blending of the side angles of material repose to the front and rear angles of material repose includes dividing the respective rounded corners of the three-dimensional volumetric model into equal segments, establishing a plane in each of these segments at a respective angle which allows an incremental change in the angles of material repose and extending the planes until they intersect the perimeter of the body.

18. (Previously Presented) The invention according to claim 1 wherein the step of developing the three dimensional volumetric model of a load to be carried in the body includes modeling corner voids of the hauled material into the three dimensional volumetric load model.

19. (Previously Presented) The invention according to claim 1 further including the step of adjusting the set of design parameters to provide the lowest practical vertical location for the center of gravity of the three dimensional model of the hauled material.

20. (Previously Presented) The invention according to claim 1 further including the step of adjusting the set of design parameters to allow material to be loaded into the dump body from the lowest practical vertical location.

21. (Currently Amended) A body of a vehicle for hauling material having a front wall, a pair of sidewalls and a rear edge, the body made by the following process:

- (a) determining a desired location for a load center of gravity on a chassis of the haulage vehicle;
- (b) determining a desired volumetric capacity for the body;
- (c) establishing an initial line for a floor of the body, an initial line for a the front wall of the body and an initial inside body width;
- (d) developing a three-dimensional volumetric model of a load to be carried in the body on the chassis defined by the initial floor line, the initial front wall line and the initial inside body width using data collected from an anticipated point of use including information from which at least two angles of material repose of an actual load carried in an existing vehicle body can be determined, the two angles of material ~~of~~ repose being selected from a group consisting of (1) a front angle of material repose of the actual load as the actual load extends from the front wall of the body to a load top, (2) one of two side angles of material repose as the actual load extends from a respective one of sidewalls of the body to the load top and (3) the other of the two side angles of material repose as the actual load extends from the other of the sidewalls of the body to the load top ~~a rear angle of material repose as the actual load extends from the rear edge of the body to the load top, the three dimensional volumetric model having a volume and a volumetric model center of gravity located on the chassis;~~
- (e) adjusting a set of design parameters of the body until the load model center of gravity is located proximate the desired location for the load center of gravity on the chassis from step (a) and the volume of the three-dimensional volumetric model is substantially similar to the desired volumetric capacity from step (b); and
- (f) producing the body in accordance with the set of design parameters.

22. (Previously Presented) The invention according to claim 21 wherein the set of design parameters of the body includes a position of the body floor and a position of the body sidewalls.

23. (Previously Presented) The invention according to claim 22 wherein the position of the body floor includes a length of the floor.

24. (Previously Presented) The invention according to claim 22 wherein the position of the body sidewalls includes a height of the sidewalls.

25. (Previously Presented) The invention according to claim 24 wherein the position of the body sidewalls further includes a distance between the respective sidewalls.

26. (Previously Presented) The invention according to claim 22 wherein the set of design parameters of the body further includes a position of the body front wall.

Claim 27 (Previously Cancelled)

28. (Previously Presented) The invention according to claim 21 wherein the data collected from the anticipated point of use further includes representations of the conical shape of an actual load carried in an existing vehicle body.

29. (Previously Presented) The invention according to claim 21 further including the step of adjusting the set of design parameters to provide the lowest practical vertical location for the center of gravity of the three dimensional model of the hauled material.

30. (Previously Presented) The invention according to claim 21 further including the step of adjusting the set of design parameters to allow material to be loaded into the dump body from the lowest practical vertical location.

31. (Currently Amended) A body of a vehicle for hauling material, the body made by the following process:

- (a) determining a desired location for a load center of gravity on a chassis of the haulage vehicle;
- (b) determining a desired volumetric capacity for the body;
- (c) establishing an initial line for a floor of the body, an initial line for a front wall of the body and an initial inside body width;
- (d) developing a three dimensional volumetric model of a load to be carried in the body on the chassis defined by the initial floor line, the initial front wall line and the initial inside body width including developing a three-dimensional volumetric load model that includes corner voids and a truncated peak of the three-dimensional volumetric model, the three-dimensional volumetric model having a volume and a volumetric model center of gravity located on the chassis wherein the three-dimensional volumetric load model is developed through a gradual incremental blending of respective side angles of material repose to a front angle of material repose and a gradual incremental blending of the respective side angles of material repose to a rear angle of material repose with the front angle of material repose being different than at least one of the side angles of material repose;
- (e) adjusting a set of design parameters of the body until the load model center of gravity is located proximate the desired location for the load center of gravity on the chassis from step (a) and the volume of the three dimensional volumetric model is substantially similar to the desired volumetric capacity from step (b); and
- (f) producing the body in accordance with the set of design parameters.

32. (Previously Presented) The invention according to claim 31 wherein the set of design parameters of the body includes a position of the body floor and a position of the body sidewalls.

33. (Previously Presented) The invention according to claim 32 wherein the position of the body floor includes a length of the floor.

34. (Previously Presented) The invention according to claim 32 wherein the position of the body sidewalls includes a height of the sidewalls.

35. (Previously Presented) The invention according to claim 34 wherein the position of the body sidewalls further includes a distance between the respective sidewalls.

36. (Previously Presented) The invention according to claim 32 wherein the set of design parameters of the body further includes a position of the body front wall.

Claim 37 (Presently Canceled)

38. (Currently Amended) The invention according to claim ~~37~~ 31 wherein the incremental blending of the side angles of material repose to the front and rear angles of material repose includes dividing the respective corners of the three-dimensional volumetric model into equal segments, establishing a plane in each of these segments at a respective angle which allows an incremental change in the angles of material repose through the front, sides and rear of the three dimensional model and extending the planes until they intersect the perimeter of the body.

Claims 39-51 (Previously Cancelled)

52. (Currently Amended) A body of a vehicle for hauling material having a front wall, a pair of sidewalls and a rear edge, the body made by the following process:

- (a) determining a representative point of use for the vehicle;
- (b) collecting data from the representative point of use;
- (c) determining a desired location for a load center of gravity on a chassis of the vehicle;
- (d) determining a desired volumetric capacity for the body;
- (e) establishing an initial line for a floor of the body, an initial line for a front wall of the body and an initial inside body width;
- (f) developing a three-dimensional volumetric model of a load to be carried in the body on the chassis defined by the initial floor line, the initial front wall line and the initial inside body width using the data collected from the representative point of use with the three-dimensional volumetric model having a volume and a volumetric model center of gravity located on the chassis, the ~~data collected~~ data from the representative point of use including information regarding the shape of an actual load carried in an existing vehicle body as it extends upwards to the actual load top from at least two of a group

consisting of (1) the body front wall, ~~the body rear edge~~ and (2) one of the two body sidewalls and (3) the other of the two body sidewalls;

(g) adjusting a set of design parameters of the body until the load model center of gravity is located proximate the desired location for the load center of gravity on the chassis from step (c) and the volume of the three-dimensional volumetric model is substantially similar to the desired volumetric capacity from step (d); and

(h) producing the body in accordance with the set of design parameters.

53. (Previously Presented) The invention according to claim 52 wherein the set of design parameters of the body includes a position of the body floor and a position of body sidewalls.

54. (Previously Presented) The invention according to claim 52 wherein the data collected from the representative point of use includes angles of material repose of an actual load carried in an existing vehicle body.

55. (Previously Presented) The invention according to claim 52 wherein the data collected from the representative point of use further includes a density of the load material.

56. (Previously Presented) The invention according to claim 52 wherein the data collected from the anticipated point of use includes a method used for loading material into an existing vehicle body.

57. (Previously Presented) The invention according to claim 52 wherein the step of developing the three-dimensional volumetric model of a load to be carried in the body includes developing a generally rounded-off conical three-dimensional volumetric load model.

58. (Previously Presented) The invention according to claim 52 further including the step of adjusting the set of design parameters to provide the lowest practical vertical location for the center of gravity of the three dimensional model of the hauled material.

59. (Previously Presented) The invention according to claim 52 further including the step of adjusting the set of design parameters to allow material to be loaded into the dump body from the lowest practical vertical location.

60. (Currently Amended) A body of a vehicle for hauling material having a front wall, a pair of sidewalls and a rear edge, the body made by the following process:

- (a) determining an anticipated point of use for the vehicle;
- (b) collecting data from the anticipated point of use;
- (c) determining a desired volumetric capacity for the body;
- (d) establishing an initial line for a floor of the body, an initial line for a front wall of the body and an initial inside body width;
- (e) developing a three dimensional volumetric model of a load to be carried in the body defined by the initial floor line, the initial front wall line and the initial inside body width using the data collected from the anticipated point of use with the three dimensional volumetric model having a volume, the ~~data~~ collected data from the anticipated point of use including information regarding the shape of an actual load carried in an existing vehicle body as it extends upwards to the actual load top from at least two of a group consisting of (1) the body front wall, the body rear edge or (2) one of the two body sidewalls and (3) the other of the two body sidewalls;
- (f) adjusting a set of design parameters of the body until the volume of the three dimensional volumetric model is substantially similar to the desired volumetric capacity from step (c); and
- (g) producing the body in accordance with the set of design parameters.

61. (Newly Presented) The body of claim 60 where the set of design parameters includes one or more of (1) a position of the body's floor, (2) a position of the body's sidewalls (3) a length of the floor, (4) a height of sidewalls, (5) a distance between the respective sidewalls and (6) a position of the body front wall.

62. (Newly Presented) The body of claim 60 including adjusting the set of design parameters to locate a center of gravity of material held in the modeled body at approximately a lowest possible position for the center of gravity.

63. (Newly Presented) The body of claim 60 further including adjusting the set of design parameters to allow material to be dropped into the modeled body from a lowest practical vertical elevation over a floor of the body.

64. (Newly Presented) A container for material made by the following process:

- (a) collecting data describing a shape of a heap of the material having front, back and two sides, where the data includes at least two angles of repose for the heaped material selected from a group of angles of repose consisting of (1) a front angle, (2) a back angle (3) a first side angle, and (4) a second side angle;
- (b) determining a set of design parameters for the container from the collected data; and
- (c) producing the body in accordance with the set of design parameters.

65. (Newly Presented) The body of claim 64 where the set of design parameters includes one or more of (1) a position of the body's floor, (2) a position of the body's sidewalls (3) a length of the floor, (4) a height of sidewalls, (5) a distance between the respective sidewalls and (6) a position of the body front wall.

66. (Newly Presented) The body of claim 64 including adjusting the set of design parameters to locate a center of gravity of material held in the modeled body at approximately a lowest possible position for the center of gravity.

67. (Newly Presented) The body of claim 64 further including adjusting the set of design parameters to allow material to be dropped into the modeled body from a lowest practical vertical elevation over a floor of the body.

68. (Newly Presented) A container for holding material made by the following process:

- (a) modeling a three-dimensional load of heaped material carried in the container, where the load has front, back and opposing side angles representing angles of repose for the material, the modeling including (1) truncating a peak of the heap and (2) blending each of the side angles to the front and rear angles by dividing corners of the three-dimensional load into segments and adjusting angles of the segments representing

angles of material repose through the front, sides and rear of the three-dimensional load and extending the segments until they intersect a perimeter of the container;

(b) selecting a set of design parameters for the container that locates the center of gravity for the modeled load proximate a desired location and provides a volume of the modeled load that is substantially a desired volume; and

(c) producing the container in accordance with the set of design parameters.

69. (Newly Presented) The body of claim 68 where a shape of the modeled load approximates a cone truncated at its top and along sides and a front that are in contact with sides and front of the body being modeled.

70. (Newly Presented) The body of claim 68 where the set of design parameters includes one or more of (1) a position of the body's floor, (2) a position of the body's sidewalls (3) a length of the floor, (4) a height of sidewalls, (5) a distance between the respective sidewalls and (6) a position of the body front wall.

71. (Newly Presented) The body of claim 68 including adjusting the set of design parameters to locate a center of gravity of material held in the modeled body at approximately a lowest possible position for the center of gravity.

72. (Newly Presented) The body of claim 68 further including adjusting the set of design parameters to allow material to be dropped into the modeled body from a lowest practical vertical elevation over a floor of the body.

73. (Newly Presented) A body of a haulage vehicle made by a process comprising:

(a) collecting data describing angles of repose of heaped material in three dimensions, where the data is from a working environment for the haulage vehicle;

(b) modeling a body to hold a load of the material, where the body's shape is defined by the collected data; and

(c) producing the body.

74. (Newly Presented) The body of claim 73 wherein the collected data includes information regarding a shape of an actual load carried in an existing vehicle body.

75. (Newly Presented) The body of claim 74 wherein the collected data includes information describing two or more of the heaped material's angles of repose selected from a group consisting of (1) an angle taken from a front wall of the body (2) an angle taken from one of the two body sidewalls and (3) an angle taken the other of the two body sidewalls.

76. (Newly Presented) The invention of claim 73 wherein modeling the body includes locating a center of gravity of material held in the modeled body at a location approximating a lowest possible position for the center of gravity.

77. (Newly Presented) The body of claim 76 further including adjusting the height of sidewalls of the body to allow material to be dropped into the modeled body from a lowest practical vertical elevation over a floor of the body.

78. (Newly Presented) A body of a haulage vehicle made by a process comprising:

- (a) modeling a shape of a load of heaped material in three dimensions, where the shape is substantially conical;
- (b) modeling a body to hold the substantially conically shaped load of the material, where a shape of the body is defined by predetermined parameters; and
- (c) producing the body according to values of the predetermined parameters resulting from the modeling of the body.

79. (Newly Presented) The body of claim 78 where the predetermined parameters include one or more of (1) a position of the body's floor, (2) a position of the body's sidewalls (3) a length of the floor, (4) a height of sidewalls, (5) a distance between the respective sidewalls and (6) a position of the body front wall.

80. (Newly Presented) The invention of claim 78 including adjusting the predetermined parameters to locate a location for a center of gravity of material held in the modeled body that approximates a lowest possible position for the center of gravity.

81. (Newly Presented) The body of claim 78 further including adjusting the predetermined parameters to allow material to be dropped into the modeled body from a lowest practical vertical elevation over a floor of the body.